



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,162	09/17/2003	D'nardo Colucci	8390-28	6355
20792	7590	06/02/2005	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC			BLACKMAN, ROCHELLE ANN J	
PO BOX 37428			ART UNIT	
RALEIGH, NC 27627			PAPER NUMBER	

2851

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,162

Applicant(s)

COLUCCI ET AL.

Examiner

Rochelle Blackman

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-9 and 11-14 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

The drawings are objected to because subject matter referenced in Fig. 7 appears blacked out and cannot be seen. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 8, and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Heilig (U.S. Patent No. 3,469,837).

Regarding claim 1, Heilig discloses an optical projection system (see FIGS. 1-36), comprising: a first image source (see 19 of FIG. 2 or 33a of FIG. 5) that is configured to generate a first array of image pixels (see image or light projected from "image source" 19 in FIG. 2 or 33a in FIG. 5); a first lens assembly (this is consider to be the projection lens of "image source" 19 since "image source" 19 is defined as a motion picture or television projector or see *wide angle 170° - 180° lenses* in col. 5, lines 35-40 for "image source" 33a) that is configured to project the first array of image pixels onto a non-planar surface; a second image source (see 20 of FIG. 2 or 33b of FIG. 5) that is configured to generate a second array of image pixels (see image or light projected from "image source" 20 in FIG. 2 or 33b in FIG. 5); and a second lens assembly (this is consider to be the projection lens of "image source" 20 since "image source" 20 is defined as a motion picture or television projector or see *wide angle 170°*

- *180° lenses* in col. 5, lines 35-40 for “image source” 33b) that is configured to project the second array of image pixels onto the non-planar surface such that the first array of image pixels and the second array of image pixels overlap along a single edge and a combination of the first array of image pixels and the second array of image pixels covers a continuous, 180 degree portion of the non-planar surface (see the image or light projected from “first and second image sources” 19 and 20 on element 10 in FIG. 2 and see col. 4, lines 34-38 or see image or light projected from “first and second image sources” 33a and 33b on the screen in FIG. 5 and also see col. 5, lines 35-40).

Regarding claim 2, Heilig discloses wherein the first and second lens assemblies are configured to respectively project the first and second arrays of image pixels onto the surface such that there is a constant angular separation between adjacent pixels (see the projected images or light in FIGS. 2 and 5).

Regarding claim 3, Heilig discloses wherein the non-planar surface is a hemispherical surface (see screens in FIGS. 2 and 5).

Regarding claim 4, Heilig discloses wherein the first and second lens assemblies are configured to respectively project the first and second arrays of image pixels onto hemispherical surfaces of varying radii (see projected images or light on screens in FIGS. 2 and 5).

Regarding claim 5, Heilig discloses wherein the first and second image sources comprise first and second cathode ray tubes, respectively (see *television projectors 19 and 20* in col. 4, lines 34-38).

Art Unit: 2851

Regarding claim 8, Heilig discloses further comprising: a dome (see S in FIG. 2 and see screen in FIG. 5) that comprises an inner surface (see 10, 10b in FIG. 2 and see inner surface of screen in FIG. 5); and wherein the first and second lens assemblies are configured to respectively project the first and second arrays of image pixels onto the inner surface of the dome such that the first array of image pixels and the second array of image pixels overlap along the single edge and the combination of the first array of image pixels and the second array of image pixels covers a continuous, 180 degree portion of the inner surface (also see the projected images or light from “first and second image sources” 19 and 20 on element 10 in FIG. 2 and see col. 4, lines 34-38 or see projected images or light from “first and second image sources” 33a and 33b on the screen in FIG. 5 and also see col. 5, lines 35-40).

Regarding claims 11-13, the method steps of “projecting an image” are similarly met by the features and functions of the above-mentioned elements recited for the “optical projection system” of claims 1-3.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heilig (U.S. Patent No. 3,349,837) in view of Colucci et al. (U.S. Patent No. 5,762,413).

Waller discloses the claimed invention except for “wherein the first and second image sources comprise first and second field emitter arrays, respectively; and wherein the first and second image sources comprise respective units selected from the group of units consisting of a digital light processing unit, a liquid crystal display unit, and a liquid crystal on silicon unit”.

Colucci teaches providing first and second image sources comprising first and second field emitter arrays (see *field emitter array* in col. 6, lines 6-18), respectively; and first and second image sources comprising respective units selected from the group of units consisting of a digital light processing unit, a liquid crystal display unit, and a liquid crystal on silicon unit” (see 46a-46c and col. 6, lines 6-18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the “first and second image sources” of the Waller reference with “first and second cathode ray tubes”, “first and second field emitter arrays”, or “units” consisting of: “a digital light processing unit, a liquid crystal display unit, and a liquid crystal on silicon unit”, as taught by Colucci, in order to provide “first and second image sources” that can be implemented in a variety of optical projection systems.

2. Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heilig (U.S. Patent No. 3,349,837) in view of Waller et al. (U.S. Patent No. 2,280,206).

Heilig discloses the claimed invention except for “wherein the first lens assembly and the second lens assembly are positioned apart from each other such that a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels overlap along the single edge on the surface is approximately equal to a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels do not overlap on the surface”; or “wherein projecting the first array of image pixels and projecting the second array of image pixels comprises: projecting the first and second arrays of image pixels onto the surface such that a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels overlap along the single edge on the surface is approximately equal to a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels do not overlap on the surface”.

Waller teaches providing a first lens assembly (*lens systems* on pg. 2, 1st column, lines 53-54) and a second lens assembly (also see *lens systems* on pg. 2, 1st column, lines 53-54) are positioned apart from each other such that a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels overlap along the single edge on the surface is approximately equal to a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels do not overlap on the surface (see pg. 2, 1st column, lines 25-28 – the brightness of the “image pixels” are all considered to be “equal” due to the avoidance of discontinuity of the projected image); or wherein projecting the first array of image pixels and projecting the second array of image pixels comprises: projecting the first and second arrays of

Art Unit: 2851

image pixels onto the surface such that a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels overlap along the single edge on the surface is approximately equal to a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels do not overlap on the surface (see pg. 2, 1st column, lines 25-28 – the brightness of the “image pixels” are all considered to be “equal” due to the avoidance of discontinuity of the projected image).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the Heilig reference with image sources that are positioned apart from each other and/or with the method of projecting first and second arrays of image pixels onto the surface such that a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels overlap along the single edge on the surface is approximately equal to a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels do not overlap on the surface, as taught by Waller for the purpose of avoiding discontinuity of the projected image (see pg. 2, 1st column, lines 25-28).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

Art Unit: 2851

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-9 and 11-14 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-34 of U.S. Patent No. 6,880,939 in view of Heilig (U.S. Patent No. 3,469,837).

Claims 11-34 of patent '939 disclose the invention of claims 1-9 and 11-14 except for "the first array of image pixels and the second array of image pixels overlap along a single edge".

Heilig teaches providing the first array of image pixels (see image or light projected from "image source" 19 in FIG. 2 or 33a in FIG. 5) and the second array of image pixels (see image or light projected from "image source" 20 in FIG. 2 or 33b in FIG. 5) overlapping along a single edge (see the image or light projected from "first and second image sources" 19 and 20 on element 10 in FIG. 2 and see col. 4, lines 34-38 or see image or light projected from "first and second image sources" 33a and 33b on the screen in FIG. 5 and also see col. 5, lines 35-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide "overlapping" of the "first array of image pixels" and the "second array of image pixels" within the "optical projection system"/ "method of projecting an image" of the patented claims, as taught by Heilig in order to avoid

discontinuity of the complete image formed by the projected "first array of image pixels" and "second array of image pixels".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rochelle Blackman whose telephone number is (571) 272-2113. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RB


JUDY NGUYEN
SUPERVISORY PATENT EXAMINER